AN ECONOMIC ANALYSIS OF AGRICULTURAL LABOR IN CHAMPAIGN, DOUGLAS, AND FORD COUNTIES, ILLINOIS

BY

HOBART CECIL CARR

B.A., University of Iowa, 1937
M.A., University of Iowa, 1938

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SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN
ECONOMICS IN THE GRADUATE SCHOOL OF
THE UNIVERSITY OF ILLINOIS, 1941

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Purpose of the Study

The purpose of the study conducted may be summarized as follows:

To describe statistically the geographical and occupational mobility, the number, duration and type of jobs of workers whose primary occupation was agriculture as compared to laborers who had agriculture as a supplementary occupation. These samples were drawn from workers living in the eastern cash grain section of the Corn Belt. Further comparisons were made between and within these groups after classifying them according to different phases of their work experience, e. g., whether or not they had been self-employed, or whether they had been union members and similar sub-classifications. Inferences were made on the basis of significant differences, that is, whether random errors of sampling could have accounted for divergences found. Measures such as the standard error of differences between means, the standard error of differences between percentages and variance analysis (the "F" test) provided bases for the inferences drawn.

To note trends in labor requirements of three chief crops comparing trends in larger areas, such as the Corn Area with those in Champaign, Douglas and Ford counties, Illinois, to which the work histories studied applied. Such trends were examined in connection with trends in type of farm operation, size of farms, number of tractors and in shifts to crops requiring less man labor. From such facts, inferences were drawn as to the prospects in employment and in opportunities for ascent of the "agricultural ladder" by the laborers studied.

Source of Data

The data upon work experience were taken from the records of the Champaign office of the Illinois State Employment Service. Each worker had a card containing information on his age, marital status, number of dependents, education, ownership of a home and/or an automobile, as well as other pertinent facts. Among the additional facts was a description of the entire work history of the registrants at that office. Upon the basis of his work history, each worker was classified as to his primary occupation and additional occupations he was capable of performing.

Accordingly, the records of 260 workers with a primary occupation of agriculture were transcribed by code and studied separately from the 138 records of workers with other types of primary occupations but with agriculture as a supplementary occupation. Judgement as to whether a given occupation was a primary or supplementary occupation was made by the Employment Service, not by the registrant.

Data on trends in labor requirements of certain types of crops, sizes of farms and other factors in larger areas mentioned and in the specific counties studied were derived from the various *Censuses of the United States, Censuses of Agriculture,* the Works Progress Administration, National Research Project study on *Trends in Employment in Agriculture* and *Changes in Technology and Labor Requirements in Crop Production.* In addition, records kept by the Agricultural Experiment Station at the University of Illinois College of Agriculture were used to find trends in labor requirements for crop production in Champaign, Douglas and Ford counties. Liberal use of the other primary and secondary sources were used to supplement the information thus obtained.

Representativeness of the Samples

No summary of the study would be complete without a consideration of the representativeness of the samples. Judgement was made difficult because no strictly comparable investigation was available upon which to base conclusions. In the

study made by the United States Department of Agriculture, *A Survey of Agricultural Labor Conditions in Livingston County, Illinois,* results on average ages of agricultural workers were obtained and no significant difference was found between that average and the one for the sample of primarily agricultural workers in Champaign, Douglas and Ford counties. The areas covered are much the same agriculturally but four years had elapsed between the time of the Department of Agriculture survey and the survey made here. The time lapse makes highly dubious any such tests based on simple sampling. Consequently, although in the many respects the results obtained were similar, no final judgement could be arrived at as to the representativeness of the sample of primarily agricultural workers—representativeness, that is, to the agricultural workers of the eastern cash grain section. Similar restrictions on other comparisons exist. The age distribution of agricultural workers in Illinois in 1930 as given by the Fifteenth Census of the United States was also quite similar. The time lapse there was nearly ten years, the area was much larger, and age, while important, is not the sole determining factor in work histories.

The samples may or may not be biased. On the question of age, they do not seem to be although the evidence above is not definitive. When the samples were taken, the workers were mostly unemployed, however. (Only 22% of the sample of laborers whose primary occupation was agriculture were not unemployed. The comparatible proportion for workers whose supplementary occupation was agriculture was 13%.) It is doubtful that an unemployed group would be representative of the whole yet seasonality would account for some of the unemployment since the data were collected in the off-season.

Although it was almost mandatory for all workers on W. P. A. to register with the Employment Service, only 10% of one sample (primarily agricultural workers) and 23% of the other sample (secondarily agricultural workers) had had such employment whether past or present. Nevertheless, it may be that the samples are biased by a somewhat too great inclusion of workers of less capable type. This assumes, how-

ever, that agricultural workers on W. P. A. in these counties have been less capable than the whole of the labor supply, an assumption not to be accepted without qualification. Even if the assumption were entirely valid, the influence of W. P. A. workers would be small since they are but 10% of the sample which can be placed unhesitatingly in the primary agricultural labor supply.

Results

In stating the broad aspects of the study only statistically significant results will be used. When one average or percentage is said to be greater or less than another, the basis of the statement was founded on tests of significant differences. When an association or classification principle is stated to be operative, tests of significance provided the foundation of the inference. On the other hand, if certain aspects are said to be comparable, no divergences other than those that could have occurred from sampling errors were found.

Comparison of the two samples of workers revealed that the average age of those with a supplementary occupation of agriculture was greater than those primarily engaged in that occupation. The latter group had had a greater percentage showing some self-employment experience as well as more experience in farm operation, farm tenancy or ownership which were included in the self-employment classification.

From an a priori standpoint, these findings are logical. Since it is necessary to have at least one supplementary occupation in addition to a primary occupation to be in the sample of workers only secondarily engaged in agriculture, it would be anticipated that their average age would be higher. Logical, too, is the greater proportion of laborers showing farm operation experience in the primarily agricultural group since farm tenancy and ownership is more an ultimate goal to them than to the others with different primary occupations.

Under such a classification principle, a background of farm life should be more prevalent among laborers whose primary occupation is agriculture. Among these 260 workers, the

fathers of 113 were farmers. The percentage, 43%, was substantially greater than the proportion, 25%, prevailing among those in the other sample.

Both groups were quite comparable as to number of dependents, education and home or automobile ownership. The larger proportions reported having no dependents and about 50% of each group had had a grammar school education or less. About 10% of each group owned their own homes while approximately 60% owned an automobile.

None of either sample belonged to a union of agricultural laborers. Membership in other types of unions was found in a substantial proportion among those with agriculture as a supplementary occupation but not in the primarily agricultural sample. Twenty-seven percent of the former sample were members of some type of union. The greatest number of such organized workers were in trades classified as unskilled by the *Dictionary of Occupations*, a publication of the United States Bureau of Labor Statistics.

As stated above, the mobility of the groups sampled was examined. Both the measure of geographical mobility and of occupational mobility may be more potential than kinetic. With these limitations upon the results, the relative mobility of certain major groups was examined.

In the sample of workers primarily agricultural, it was found that those who have had self-employment experience were less geographically mobile than the workers lacking such experience. Those in this sample who were still employed at the time of registration were also less geographically mobile. The sample of workers only secondarily agricultural disclosed no such relationship which could not be ascribed to random errors of sampling.

The occupational mobility of the laborers with self-employment experience was in neither sample any greater or less than those without. The "still employed" group among the workers with agriculture as a primary occupation, were less occupationally mobile than its counterpart. This did not hold true in the other sample, however.

Union members were no less geographically mobile than unorganized workers but were less occupationally mobile. This applies only to the group secondarily agricultural since the other sample had but one worker belonging to a union.

The relation of age to both types of mobility was not clear-cut and certainly not of a straight line character. In both samples, geographical mobility did not seem to be associated with age under almost any condition. The exception to this was an age class 50-69 among primarily agricultural workers. This age class was less mobile than any other. Variance analysis disclosed, however, that age and occupational mobility were associated in the group primarily agricultural but not in the other. It is worthy of note that when the latter group was classified according to union membership, a variance analysis of age and occupational mobility disclosed an association in each of these two sub-classes.

Geographical and occupational mobility might be thought in some cases to be associated in a positive relationship. In neither sample as a whole, however, was this evident. Only among the class of workers who had no self-employment was an association disclosed. In both samples the more geographically mobile workers who had no such experience were also more occupationally mobile.

Data on Social Security coverage were collected and showed that 79% of the primarily agricultural workers and 90% of the secondarily agricultural workers had Social Security numbers. Of course, not all those who had obtained numbers have accumulated benefiits even through their supplementary occupations since some numbers at first were given out rather indiscriminately. If Social Security were extended to agriculture, about 2,300 additional workers in Champaign, Douglas and Ford counties would be covered through their primary occupation and about 22% of the farms would pay the tax.

Trends in labor requirements were found to be negative in the three chief crops—corn, oats and soybeans—which were produced in the area considered. The labor requirements of the last crop declined by about 7% per year for 10 years. Num-

ber of farms were declining—by about 14% from 1920 to 1940—number of tractors were increasing at a rate of 8% a year between 1930 and 1940—and the percentage of farms operated by tenants decreasing while the percentage operated by part-owners has been steadily increasing.

It seems unlikely in the light of such trends that the first major step up the "agricultural ladder" viz., achieving tenancy, will occur in the future as early as it did in the past. The sample of workers primarily engaged in agriculture revealed that those who had had tenancy experience began at an average age of 25 years. Consolidation of farms, increases in the amount of capital needed, (to buy, say, tractors) declining trends in agricultural employment which would be the chief source of income, all are likely to militate against the agricultural worker reaching that first goal as early in life in the future. Workers already over 25 years of age will have even less opportunity unless their supplementary occupations provide additional income. Such workers will have more dependents and probably no substantially greater surplus income even under the impetus of defense spending. The effect of such spending may easily lead to greater mechanization and consolidation.

VITA

Hobart Cecil Carr was born January 27, 1912, in Fredricksburg, Iowa. He was graduated from the Davenport, Iowa, High School in 1930. Three years later he entered the University of Iowa from which he was graduated with honors in June, 1937. In June of the following year he was awarded the Master of Arts degree. For the past three years—1938 to 1941—he has held the rank of assistant at the University of Illinois. During that time he has continued his work on the Doctorate. He is a member of Phi Beta Kappa and the Order of Artus.